

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference P51361	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US03/17837	International filing date (day/month/year) 06 June 2003 (06.06.2003)	Priority date (day/month/year) 06 June 2002 (06.06.2002)
International Patent Classification (IPC) or national classification and IPC IPC(7): A61K 31/655; C07D 231/08, 277/34; C07C 205/42, 211/45, 243/20 and US Cl.: 514/150; 534/774, 792; 548/183, 366.1, 366.4; 560/20, 43; 564/461		
Applicant SMITHKLINE BEECHAM CORPORATION		

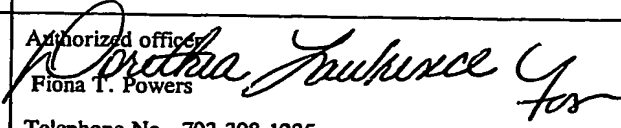
1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of ___ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 17 December 2003 (17.12.2003)	Date of completion of this report 28 August 2004 (28.08.2004)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer  Fiona T. Powers Telephone No. 703-308-1235

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US03/17837

I. Basis of the report**1. With regard to the elements of the international application:***

- ☒ the international application as originally filed.
- ☒ the description:
pages 1-37 _____ as originally filed
pages NONE _____, filed with the demand
pages NONE _____, filed with the letter of _____.
- ☒ the claims:
pages 38-51 _____, as originally filed
pages NONE _____, as amended (together with any statement) under Article 19
pages NONE _____, filed with the demand
pages NONE _____, filed with the letter of _____.
- ☒ the drawings:
pages NONE _____, as originally filed
pages NONE _____, filed with the demand
pages NONE _____, filed with the letter of _____.
- ☒ the sequence listing part of the description:
pages NONE _____, as originally filed
pages NONE _____, filed with the demand
pages NONE _____, filed with the letter of _____.

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages NONE
- ☒ the claims, Nos. NONE
- ☒ the drawings, sheets/fig NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US03/17837**V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. STATEMENT**

Novelty (N)	Claims <u>1-51</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>1-49 and 51</u>	YES
	Claims <u>50</u>	NO
Industrial Applicability (IA)	Claims <u>1-51</u>	YES
	Claims <u>NONE</u>	NO

2. CITATIONS AND EXPLANATIONS

Claim 50 lacks an inventive step under PCT Article 33(3) as being obvious over Iijima et al. (US 4,948,900).

The reference generically discloses the claimed compound 5-(4-amino-3-hydroxy-benzylidene)-thiazolidine-2,4-dione. Note formula III in column 3, lines 5 to 15 and claim 1 where the dotted line represents a double bond. The compound is an intermediate for the preparation of pharmaceuticals. The reference also discloses a method for the preparation of 5-(4-amino-3-hydroxy-benzylidene)-thiazolidine-2,4-dione and the nitro analog 5-(3-hydroxy-4-nitro-benzylidene)-thiazolidine-2,4-dione by condensing 3-hydroxy-4-nitrobenzaldehyde with 2,4-dioxothiazolidine in the presence of a base and then treating the product with a reducing agent. Note column 6, lines 45 to 54. One of ordinary skill in the art would have been motivated to prepare 5-(3-hydroxy-4-nitro-benzylidene)-thiazolidine-2,4-dione and 5-(4-amino-3-hydroxy-benzylidene)-thiazolidine-2,4-dione with the expectation that additional compounds useful for the preparation of pharmaceuticals would be obtained.

Claims 1-49 and 51 meet the criteria set out in PCT Article 33(2) -(4) because the prior art does not teach or fairly suggest the claimed invention.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US03/17837

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claim 50 is objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or contents thereof: the compound (E)-3-(4-amino-3-hydroxy-phenyl)-2-methyl-acrylic acid ethyl ester hydrochloride is named twice in the claim.

Box No. VIII(ii) DECLARATION: ENTITLEMENT TO APPLY FOR AND BE GRANTED A PATENT

The declaration must conform to the standardized wording provided for in Section 212; see Notes to Boxes Nos. VIII, VIII(I) to (v) (in general and the specific Notes to Box No. VIII(ii)). If this Box is not used, this sheet should not be included in the request.

Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51*bis*.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate:

SMITHKLINE BEECHAM CORPORATION is entitled to apply for and be granted a patent by virtue of the following:

an assignment from

HEERDING, DIRK A., 1250 South Collegeville Road, Collegeville, Pennsylvania 19426,
United States of America, dated 04 June 2003.

This declaration is made for the purposes of all designations.

☐ This declaration is continued on the following sheet, "Continuation of Box No. VIII(ii)".

Box No. VIII(iv) DECLARATION: INVENTORSHIP (only for the purposes of the designation of the United States of America). The declaration must conform to the following standardized wording provided for in Section 214; see Notes to Boxes Nos. VIII, VIII(I) to (v) (in general) and the specific Notes to Box No. VIII (iv). If this Box is not used, this sheet should not be included in the request.

**Declaration of Inventorship (Rules 4.17(iv) and 51bis.1(a)(iv))
for the purposes of the designation of the United States of America:**

I hereby declare that I believe I am the original, first and sole (if only one inventor is listed below) or joint (if more than one inventor is listed below) inventor of the subject matter which is claimed and for which a patent is sought.

This declaration is directed to the international application of which it forms a part (if filing declaration with application).

This application is directed to international application No. PCT/ (if furnishing declaration pursuant to Rule 26ter).

I hereby declare that my residence, mailing address, and citizenship are as stated next to my name.

I hereby state that I have reviewed and understand the contents of the above-identified international application, including the claims of said application. I have identified in the request of said application, in compliance with PCT Rule 4.10, any claim to foreign priority, and I have identified below, under the heading "Prior Application," by application number, country or Member of the World Trade Organization, day, month and year of filing, any application for a patent or inventor's certificate filed in a country other than the United States of America, including any PCT international application designating at least one country other than the United States of America, having a filing date before that of the application on which foreign priority is claimed.

Prior Applications: (prior to priority).....

I hereby acknowledge the duty to disclose information that is known by me to be material to patentability as defined by 37 C.F.R. §1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the PCT international filing date of the continuation-in-part.

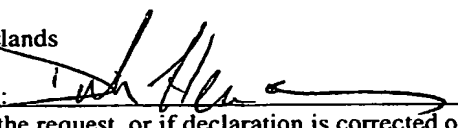
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name: **DIRK A. HEERDING**

Residence: 1250 South Collegeville Road, Collegeville, Pennsylvania 19426, United States of America
(city and either US state, if applicable, or country)

Mailing Address: GlaxoSmithKline, Corporate Intellectual Property - UW2220, P.O. Box 1539
King of Prussia, Pennsylvania 19406-0939

Citizenship: Netherlands

Inventor's Signature: 
(if not contained in the request, or if declaration is corrected or added under Rule 26ter after the filing of the international application. The signature must be that of the inventor, not that of the agent.)

Date: June 4, 2003
(of signature which is not contained in the request, or of the declaration that is corrected or added under Rule 26ter after the filing of the international application)

☐ This declaration is continued on the following sheet, "Continuation of Box No. VIII(iv)".

Form PCT/RO/101 (declaration sheet (iv)) (March 2001; reprint January 2003)

See Notes to the request form